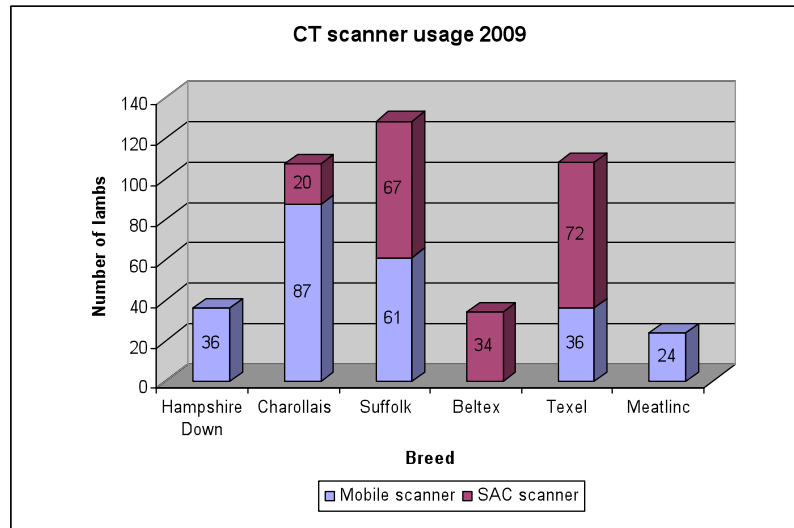


CT scanning sheep - update 2009

In 2009 a mobile CT scanning service, offered by SAC to complement the static service available in Edinburgh, had a good uptake in general across all breeds.



However, Texel uptake was lower than expected with only 36 lambs out of a total of 108 CT scanned going through the mobile unit. But it was encouraging to see that 4 breeders new to CT scanning brought lambs for the first time to the mobile unit.

CT scanning your lambs provides several benefits to your flock:

- Use of CT to help identify elite lambs, amongst homebred ram lambs, to choose stock sires, has led to very high rates of genetic gain in many leading recorded flocks
- CT provides the only authenticated way to assess gigot muscularity and have it evaluated by Signet
- CT data and images provide a valuable way to support the promotion of recorded rams at sales
- CT scanning provides a great way to assess the genetic merit of less well recorded bloodlines

Breeding values produced by Signet include CT scanning data. The following benefits are gained through inclusion of CT scanning data in EBVs:

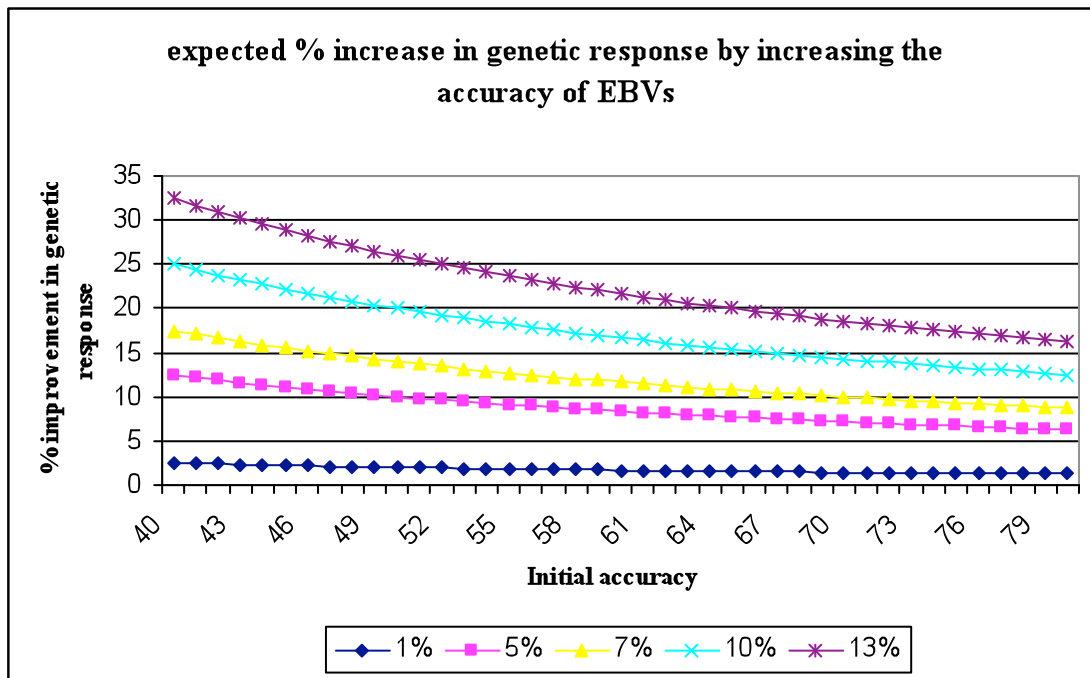
- CT data produces an increase in the accuracy of EBVs for different traits (see table below) and these benefits are even greater when accuracies are low.

	Increase in EBV accuracy % for CT scanned lambs (with weights and US data)	
EBV	...compared to when their CT data is not included in genetic evaluations*	...compared to other lambs (with weights and US data), from the same breed, with no CT data
	%	%
Index	2	4
CT-muscularity	13	16
CT-fat	7	10
CT-lean	5	7
Back fat depth (US)	6	9
Muscle depth (US)	1	4
US scan weight	1	3
8 week weight	1	3

(* the increase may be underestimated – the increase in accuracy as a result of progeny (data from 1997-2009 used) is not accounted for in the models used for comparison)

Increasing the accuracy of breeding values allows more informed and precise selection choices to be made and can produce an increase in the genetic response as shown in the table and figure below.

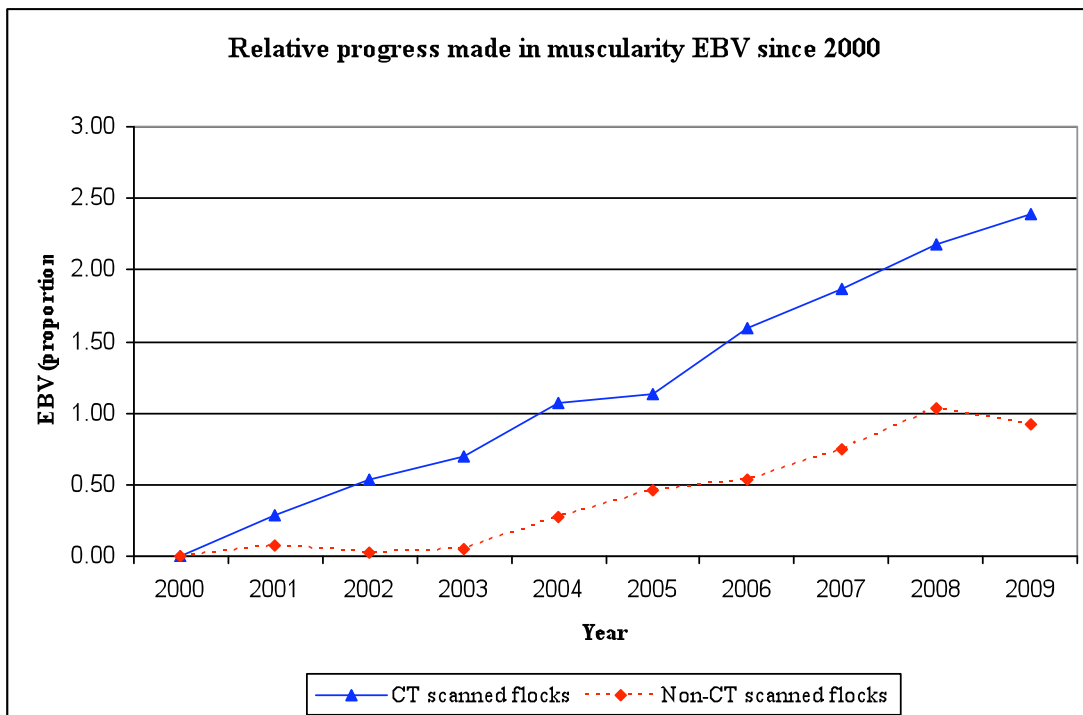
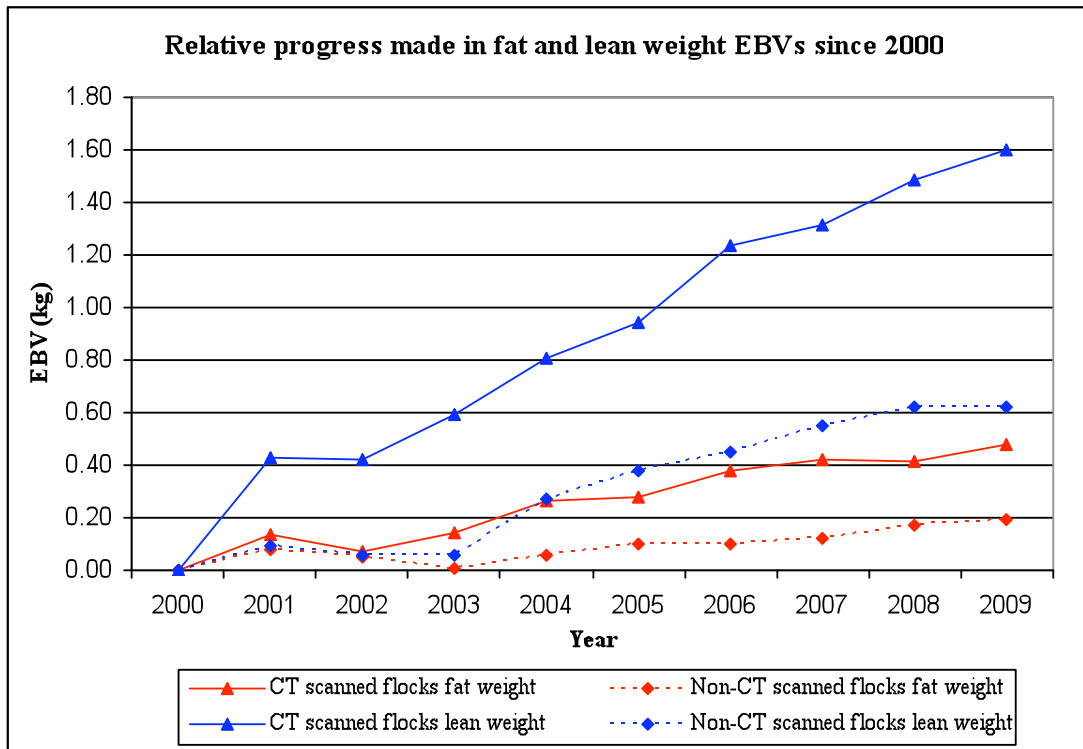
Trait	Accuracy without including CT data	Increase in accuracy from including CT data	Expected increase in genetic response from including CT data
CT-muscularity	64	13	20.3%
CT-fat	70	7	10.0%
CT-lean	76	5	6.6%
Back fat depth (US)	76	6	7.9%



(eg. an accuracy of 76% for a trait when CT data not included. Accuracy is 81% when CT data included ie. 5% increase. To see the % increase in genetic response – take 76% (along the bottom axis) read up to pink 5% line and then across to the % response axis – this equates to a 6.6% theoretical increase in genetic response)

- CT scanning maximises the rate of progress in EBVs for lean weight and muscularity with a minimum effect on fat levels.

The graphs below compare 12 flocks where lambs have been CT scanned with a randomly selected group, of 12 similarly sized flocks, where CT has not been used. EBVs for these non-CT scanning flocks were initially lower, but their rate of increase is also lower.



- Inclusion of CT data allows more informed selection decisions to be made within a flock and on average increases the index value by 2.25 units per year, for CT scanned individuals and their contemporaries.